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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,316	04/12/2004	Nikolaos Koudas	2002-0387 (1014-059)	2609
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AT&T Corp. Room 2A-207 One AT&T Way Bedminster, NJ 07921			EXAMINER DO, CHAT C	
			ART UNIT 2193	PAPER NUMBER
			MAIL DATE 08/03/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/822,316

Applicant(s)

KOUDAS ET AL.

Examiner

Chat C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004 and 10 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/12/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations cited in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the abstract should be in narrative form to detail the invention. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 8, the limitation “reducing activity applies the Johnson-Lindenstrauss Lemma” is unclear what is included or excluded from the Johnson-Lindenstrauss Lemma and how the reduction is performed.

Re claim 12, the limitation “quantifying activity occurs dynamically” is indefinite since it does not address by what it means dynamically. For examination purposes, the examiner disregards the term “dynamically”.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-20 cite a method, medium, and system for performing certain steps in accordance with a mathematical algorithm. In order for claims to be statutory, claims must either include a practical/physical application or a concrete, useful, and tangible result. However, claims 1-20 merely disclose steps/components for performing certain steps without further disclosing a practical/physical application or a useful and tangible result since the claims appear to preempt every substantial practical application of the idea embodied by the claim and there is no cited limitation in the claims that breathes sufficient life and meaning into the preamble so as to limit it to a particular practical application rather than being so broad and sweeping as to cover every substantial

practical application of the idea embodied therein. Therefore, claims 1-20 are directed to non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-2, 7-8, 12-14, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Christos et al. (“Latent Semantic Indexing: A Probabilistic Analysis”).

Re claim 1, Christos et al. disclose in the article a method comprising a plurality of activities (e.g. abstract and mainly sections I “Introduction” and “IR and LSI” in pages 159-160), comprising: automatically: receiving a plurality of elements for each of a plurality of continuous data streams (e.g. as input data element of matrix A in section 2 of LSI background in page 160); treating the plurality of elements as a first data stream matrix that defines a first dimensionality (e.g. A having dimension of n by m); reducing the first dimensionality of the first data stream matrix to obtain a second data stream matrix (e.g. second paragraph right column of page 160 and left column page 164 wherein the Johnson-Lindenstrauss is applied to the matrix to efficiently and randomly reducing the dimension of input matrix for next stage of calculation); computing a singular value decomposition of the second data stream matrix (e.g. last two paragraphs in right column of page 160); and based on the singular value decomposition of the

second data stream matrix, quantifying approximate linear correlations between the plurality of elements (e.g. abstract, whole page 161 wherein the document is rank for order).

Re claim 2, Christos et al. further disclose in the article obtaining the plurality of elements (e.g. paragraph right under section 2 LSI background in page 160).

Re claim 7, Christos et al. further disclose in the article at least one of the plurality of continuous data streams comprises out of order elements (e.g. paragraph right under section 2 LSI background in page 160 wherein the documents/terms are not in order).

Re claim 8, Christos et al. further disclose in the article reducing activity applies the Johnson-Lindenstrauss Lemma (e.g. section 5 “SLI by random projection” in pages 163-164).

Re claim 12, Christos et al. further disclose in the article quantifying activity occurs dynamically (e.g. abstract, whole page 161 wherein the document is rank for order).

Re claims 13-14, Christos et al. further disclose in the article the approximate linear correlations comprise a plurality of eigenvalues and eigenvectors that approximate principal eigenvalues and eigenvectors respectively of the first data stream matrix (e.g. second paragraph right after the section 2 “LSI background” in page 160).

Re claims 17-18, Christos et al. further disclose in the article outputting and reporting the approximate linear correlations (e.g. inherently since it must communicate with the next process).

Re claim 19, it is a machine-readable medium claim of claim 1. Thus, claim 19 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 20, it is a system claim of claim 1. Thus, claim 20 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3-6, 9-11, and 15-16 are rejected under 35 U.S.C. 103(a) as being obvious over Christos et al. ("Latent Semantic Indexing: A Probabilistic Analysis") in view of Moreno (U.S. 7,065,544).

Re claims 3-6, Christos et al. fail to disclose in the article at least one of the plurality of continuous data streams is synchronous, asynchronous, bursty, or sparse. However, these type of data streams are well-known in the art of technology and widely used in the art as seen in Moreno's application wherein the inputs plurality of continuous data streams is synchronous, asynchronous, bursty, or sparse (e.g. A/V stream 22 in Figures 2-3 and col. 1 lines 5-38). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the inventions is made to add plurality of continuous data streams is synchronous, asynchronous, bursty, or sparse as seen in



Moreno's application into Christos et al.'s invention because it would enable to correlate signal of specific application (e.g. col. 1 lines 27-38).

Re claims 9-11, Christos et al. fail to disclose in the article repeating said computing activity by periodically and randomly. However, Moreno discloses in the article repeating (e.g. Figure 7a) said computing activity by periodically (e.g. Figure 3a) and randomly (e.g. Figure 3b). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add in the article repeating said computing activity by periodically and randomly as seen in Moreno's invention into Christos et al.'s invention because it would enable to continuous correlating input stream signal (e.g. Figures 3).

Re claims 15<sup>16</sup>, Christos et al. fail to disclose in the article receiving a user-specified accuracy metric for the approximate linear correlations and the article the approximate linear correlations meet a user-specified accuracy metric. However, Moreno discloses in the article receiving a user-specified accuracy metric for the approximate linear correlations (e.g. Figures 7 as complete match) and the article the approximate linear correlations meet a user-specified accuracy metric (e.g. Figures 7 wherein the total match is found for the correlation). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add receiving a user-specified accuracy metric for the approximate linear correlations and the article the approximate linear correlations meet a user-specified accuracy metric as seen in Moreno's invention into Christos et al.'s invention because it would enable to detect the repetitions of information (e.g. col. 1 lines 41-68).

*Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent Publication Application No. 2006/0271512 to Burges discloses a system and method providing automated margin tree analysis and processing of sampled data.
- b. U.S. Patent Publication Application No. 2004/0083452 to Minor et al. disclose a method and system for predicting multi-variable outcomes.
- c. U.S. Patent Publication Application No. 2003/0200097 to Brand discloses a incremental singular value decomposition of incomplete data.
- d. U.S. Patent Publication Application No. 2003/0078734 to Ozbek discloses an adaptive seismic noise and interference attenuation method.
- e. U.S. Patent Publication Application No. 2002/0116131 to Meek discloses a seismic processing system and method to determine the edges of seismic data events.
- f. U.S. Patent Publication Application No. 2002/0087508 to Hull et al. disclose a text influenced molecular indexing system and computer-implemented and/or computer-assisted method for same.
- g. U.S. Patent Publication Application No. 2003/0048265 to Bito et al. disclose a method and information system for process analysis.
- h. U.S. Patent No. 6,064,768 to Hajj et al. disclose a multiscale feature detector using filter banks.

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- i. U.S. Patent No. 6,785,684 to Adbo discloses an apparatus and method for determining clustering factor in a database using block level sampling.
- j. U.S. Patent No. 6,753,810 to Yang et al. disclose a fast ambiguity resolution for real time kinematic survey and navigation.
- k. U.S. Patent No. 6,542,903 to Hull et al. disclose a text influenced molecular indexing system and computer-implemented and/or computer-assisted method for same.
- l. U.S. Patent No. 6,278,970 to Milner discloses a speech transformation using log energy and orthogonal matrix.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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